AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for determining force exerted on a vehicle wheel, the vehicle wheel comprising a radius part between a hub and a radially outermost annular ground contacting part, the method comprising the steps of:

obtaining data on a relationship between the force exerted on the vehicle wheel and a physical parameter of the vehicle wheel at at least one predetermined measuring position;

deriving a formula that calculates the physical parameter in terms of the magnitude of the force exerted on the vehicle wheel, using the obtained data on the relationship;

measuring the physical parameter of the vehicle wheel during rolling;

computing the formula using the measured physical parameter to calculate the force; and

outputting the calculated force;

wherein

the physical parameter is the magnitude of a radial strain in the radius part.

2. (Previously presented) The method according to claim 1, wherein

the force is at least one of a vertical force, a lateral force, a longitudinal force and a torque.

3. (Currently Amended) The method according to claim 1 or 6 or 7 or 8, wherein

the radially outermost annular ground contacting part is a tire, and the radius part is a wheel disk of a wheel on which the tire is mounted.

4. (Canceled)

5. (Currently Amended) The method according to claim 1 or 7 or 8, wherein said at least one predetermined measuring position is a twelve-o'clock position (P3), three-o'clock position (P4), six-o'clock position (P1) and nine-o'clock position (P2) which are arranged at every 90 degrees around the rotational axis of the vehicle wheel.

6. (Previously Presented) A method for determining force exerted on a vehicle wheel, the vehicle wheel comprising a radius part between a hub and a radially outermost annular ground contacting part, the method comprising the steps of:

obtaining data on a relationship between the force exerted on the vehicle wheel and a physical parameter of the vehicle wheel at at least one predetermined measuring position;

deriving a formula of the physical parameter for the magnitude of the force, using the obtained data on the relationship;

measuring the physical parameter of the vehicle wheel during rolling; computing the formula using the measured physical parameter to calculate force; and

outputting the calculated force,

wherein

the measuring of the physical parameter includes:

locating a sensor for the physical parameter which is fixed to the radius part; and

reading the sensor when the sensor is at said at least one predetermined measuring position.

7. (Previously Presented) A method for determining force exerted on a vehicle wheel, the vehicle wheel comprising a radius part between a hub and a radially outermost annular ground contacting part, the method comprising the steps of:

obtaining data on a relationship between the force exerted on the vehicle wheel and a physical parameter of the vehicle wheel at at least one predetermined measuring position;

deriving a formula of the physical parameter for the magnitude of the force, using the obtained data on the relationship;

measuring the physical parameter of the vehicle wheel during rolling;

computing the formula using the measured physical parameter to calculate force; and

outputting the calculated force,

wherein

said at least one predetermined measuring position is a plurality of predetermined measuring positions, and

the measuring of the physical parameter includes:

locating a plurality of sensors for the physical parameter which are fixed to the radius part; and

reading each said sensor when the sensor is at at least one of the predetermined measuring positions.

8. (Currently Amended) A method for determining force exerted on a vehicle wheel, the vehicle wheel comprising a radius part between a hub and a radially outermost annular ground

contacting part, the method comprising the steps of:

obtaining data on a relationship between the force exerted on the vehicle wheel and a physical parameter of the vehicle wheel at at least one predetermined measuring position;

deriving a formula of the physical parameter for the magnitude of the force, using the obtained data on the relationship;

measuring the physical parameter of the vehicle wheel during rolling;

computing the formula using the measured physical parameter to calculate force; and

outputting the calculated force,

wherein

said at least one predetermined measuring position is a plurality of predetermined measuring positions, and

the measuring of the physical parameter includes:

locating a plurality of sensors for the physical parameter which are fixed to the radius part; and

reading each said sensor when the sensor is at each of the predetermined measuring positions.

9. (Original) A device for determining force exerted on a vehicle wheel including a radially outermost annular ground contacting part, a hub and a radius part therebetween, the device comprising:

at least one sensor for measuring a physical parameter of the vehicle wheel during rolling,

said at least one sensor being attached to the radius part;

a memory in which a formula that calculates the physical parameter in terms of the force exerted on the vehicle wheel at at least one predetermined measuring position is stored;

a device for locating said at least one sensor in order to measure the physical parameter when the sensor is at the predetermined measuring position; and

a processor which, using data on the physical parameter read from said at least one sensor, computes the formula to calculate the force and output data on the force.

10. (Previously presented) The device according to claim 9, wherein

said physical parameter is the magnitude of radial strain on the radius part of the vehicle wheel.

11. (Currently Amended) The device according to claim 9, wherein

said at least one sensor is ~~one~~ a single sensor fixed to the radius part of the vehicle wheel.

12. (Previously Presented) The device according to claim 9, wherein

said at least one sensor is a plurality of sensors arranged around the rotational axis of the vehicle wheel and fixed to the radius part of the vehicle wheel.

13. (Canceled)

14. (Previously Presented) The device according to claim 9, wherein said force is at least one of a vertical force, a lateral force, a longitudinal force and a self-aligning torque.

15. (Previously Presented) A brake system including:

the device according to claim 9 to determine a breaking force during braking,

a braking mechanism for the vehicle wheel; and

a controller for controlling the braking mechanism so that the breaking force becomes a maximum during braking.

16. (Currently Amended) The method of claim 6 or 7 or 8, wherein said physical parameter is the magnitude of radial strain on the radius part of the vehicle wheel.

17. (New) The method of claim 6, wherein

the force is at least one of a vertical force, a lateral force, a longitudinal force and a torque, wherein the vertical force, lateral force and longitudinal force are forces in x-direction, y-direction and z-direction, respectively, of an xyz orthogonal coordinate system fixed to a wheel plane, and the torque is a force around the x-axis of the xyz orthogonal coordinate system.

18. (New) The method of claim 7, wherein

the force is at least one of a vertical force, a lateral force, a longitudinal force and a torque,

wherein the vertical force, lateral force and longitudinal force are forces in x-direction, y-direction and z-direction, respectively, of an xyz orthogonal coordinate system fixed to a wheel plane, and the torque is a force around the x-axis of the xyz orthogonal coordinate system.

19. (New) The method of claim 8, wherein

the force is at least one of a vertical force, a lateral force, a longitudinal force and a torque, wherein the vertical force, lateral force and longitudinal force are forces in x-direction, y-direction and z-direction, respectively, of an xyz orthogonal coordinate system fixed to a wheel plane, and the torque is a force around the x-axis of the xyz orthogonal coordinate system.

20. (New) The method of claim 9, wherein

the force is at least one of a vertical force, a lateral force, a longitudinal force and a torque, wherein the vertical force, lateral force and longitudinal force are forces in x-direction, y-direction and z-direction, respectively, of an xyz orthogonal coordinate system fixed to a wheel plane, and the torque is a force around the x-axis of the xyz orthogonal coordinate system.